



Denver Water

Operations & Maintenance Division

Standard Operating Procedure

Subject : Temporary Invasion Pipe Chlorination

Item :

Date : September 5, 1995

Revision Date:

Purpose

- A. During the usage of temporary by-pass piping (invasion pipe), there is an opportunity for contamination of the pipes. Therefore, effective disinfection is necessary, the chlorinated water shall be neutralized with Sodium Metabisulfite, and sampled for bacteriological analysis before the by-pass line is released and placed into service

Policy

- A. To be developed.

Equipment

- A. Source to invasion by-pass with fittings:
1. Fire Hydrant as source to by-pass pipe
 - *If the hydrant is in operating condition, this method of injection is approved.
 - *After injection, the fire hydrant's branch valve shall be closed.
 - *The fire hydrant shall be flagged, Aout of service, □ by Valve Control Personnel.
 - *Fire Department shall be notified through DW dispatcher.
 2. (1) 2-inch AT□
 3. (2) 2-inch shut-off valves.
 4. (1) 2½" **MFHA (Male Fire Hose Adaptor)** at the injection point.
 5. (1) 2-inch black rubber hose connection.
 6. (1) Existing branch valve for isolation from the distribution system.
 7. ¾" garden hose nozzle (valves) for the ¾" temporary service hoses (invasion pipe to house hook-ups).
- B. Fire hydrant as source to tank or
- C. (1) 1½" Corporation valve on existing main with 2½" MFHA.
- D. Discharge Point on Invasion Pipe:
1. (1) 2-inch isolation valve at end of by-pass pipe.
 2. (1) 2-inch MFHA.
 3. (1) ¾" sample tap (90degree bend) at end of by-pass pipe.
 4. (1) ¾" shut-off valve.

Procedure

- A. Connect fittings to the hydrant or corporation tap to fill the Cl₂ tank.
- B. Charge the hydrant or corporation tap and fill the Cl₂ tank.
- C. Connect source from the pump discharge to the 2-inch injection point on the 2-inch AT□.

- A. Open pump valve and 2-inch valve at the injection point.
- B. Open the 2-inch isolation valve at the end of the by-pass piping before pumping.
- C. Close the isolation branch valve to isolate the hydrant from the distribution system.
- D. Open the hydrant stem valve.
- E. Open the 2-inch isolation valve on the 2-inch AT□.
- F. Start the engine and commence pumping chlorinated water into the by-pass pipe.
- G. If the drain holes on the hydrant leak, close the stem valve on the hydrant, and continue pumping.
- H. Test the chlorine residual at the 2-inch blow-off for **200 mg/L** with chlorine test strips.
- I. Once the required chlorine residual (*200 mg/L*) is satisfied, shut off the 2-inch isolation valve at the discharge point.
- J. Open each ¾" service tap, and charge the ¾" service hose(s) with the required chlorine residual (*200 mg/L*).
- K. Once the required residual is satisfied, shut off the ¾" garden hose nozzle (valve) at each discharge point.
- L. Close the 2-inch valve at the injection point on the AT□.
- M. Shut-off the engine.
- N. Disconnect all fittings and hoses.
- O. The chlorine has a **3-hour** contact time starting after the chlorination is completed.
- P. Schedule for dechlorination and bacteriological sample collection after the **3 hour** contact time has expired (**INV-Dechlor & Pipe Rehab-TC**).

III. See attached **Figure 1** for more details.

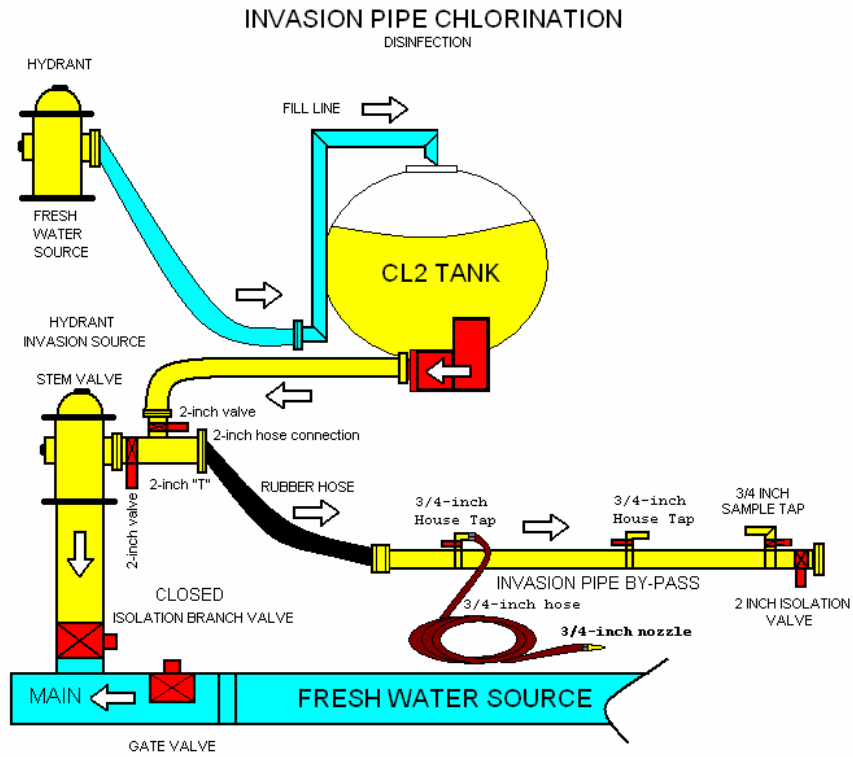


Figure 1